

CLAIMS

1. An information display apparatus characterized by comprising a pair of main ribs located at both ends, a plurality of intermediate ribs interposed between the main ribs, a pivot for turnably fixing the main ribs and the intermediate ribs in a root portion, and a fan face joined to the intermediate ribs between the pair of main ribs as well as openably/closably bent like bellows, wherein at least a part of the fan face comprises a thin film flat display formed on a flexible and bendy thin film or a thin film flat display formed on a flexible and bendy thin film is disposed to at least a part of the fan face.

2. An information display apparatus characterized by comprising a pair of main ribs located at both ends, a plurality of intermediate ribs interposed by the main ribs, a pivot for turnably fixing the main ribs and the intermediate ribs in a root portion, and a fan face joined to the intermediate ribs between the pair of main ribs as well as openably/closably bent like bellows, wherein in an unfolded state of the fan face, a thin film flat display formed on a flexible and bendy thin film is made to a flat surface and joined to the vertex portions of mountains of the fan face so that the mountains of the fan face are joined in at least a part of the fan face, and when the fan face is folded, the thin film flat display is folded to

valleys of the fan face along it in association with the folding operation.

3. An information display apparatus according to claim 1 or 2, characterized in that the thin film flat display is an organic EL display or an electronic paper.

4. An information display apparatus according to any one of claims 1 to 3, characterized in that a keyboard is disposed to a main rib.

5. An information display apparatus according to any one of claims 1 to 4, characterized in that keyboards comprising touch switches are disposed to intermediate ribs.

6. An information display apparatus according to any one of claims 1 to 5, characterized in that a computer system for information processing is disposed to the main rib.

7. An information display apparatus according to any one of claims 1 to 6, characterized in that a microphone and a speaker are mounted on the main rib, an antenna is mounted on the main rib or an intermediate rib is used as an antenna to permit communication of audio, image or data to the outside.

8. An information display apparatus comprising:  
a thin film flat display formed on a flexible thin film;

hold means for holding the thin film flat display from

a back surface such that it is joined to front surfaces of a plurality of rigid rectangular substrates when they are arranged on a flat surface;

a case for accommodating the thin film flat display;  
and

a take-up unit disposed in the case for taking up and accommodating the thin film flat display together with the holding means in the case using a direction parallel with a long side of the substrate as an axis.

9. An information display apparatus according to 8, characterized in that a magnet is disposed to at least one of two confronting side walls of adjacent substrates.

10. An information display apparatus characterized by comprising:

a thin film flat display formed on a thin film comprising at least one of flexible shape memory alloy, shape memory resin, shape memory alloy fiber, and shape memory resin fiber;

a case for accommodating the thin film flat display;

an accommodation unit disposed in the case for accommodating the thin film flat display by taking up or folding it; and

heat means for heating the thin film flat display when it is accommodated or unfolded.

11. An information display apparatus according to any

of claims 8 to 10, characterized in that the thin film flat display is an organic EL display or an electronic paper.

12. An information display apparatus according to any one of claims 8 to 11, characterized in that a keyboard is disposed to the case.

13. An information display apparatus according to any one of claims 8 to 12, characterized in that a computer system for information processing is disposed to the case.

14. An information display apparatus according to any one of claims 8 to 13, characterized in that the case accommodates a microphone, a speaker, and an antenna to permit communication of audio, image or data to the outside.

15. An information display apparatus according to any one of claims 1 to 9 or claims 11 to 13, characterized in that the thin film comprises at least one of shape memory alloy, shape memory resin, shape memory alloy fiber, and shape memory resin fiber.

16. An information display apparatus according to 15, characterized by comprising means for heating the thin film.